

REMARKS

I. Introduction

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. These amended claims reflect the fact that the Examiner did not enter the response after final rejection filed on May 20, 2004 and addresses the issues raised by the Examiner in the Advisory Action of June 16, 2004.

Claims 5 and 6 are currently being amended.

Claims 4, 22 and 24 – 29 are cancelled. The cancellation of claims does not constitute acquiescence in the propriety of any rejection set forth by the Examiner. The canceled claims have been replaced by new claims 30-39, which applicants believe address the issues raised by the Examiner in the Advisory Action. New claim 30 is supported in the original specification and claims, i.e., particularly see page 24, line 8 to page 25, line 5, and in original claim 11. All of the claimed nucleic acid molecules of claim 30 encode a FRS2 polypeptide that binds to Grb-2. The Examiner comments that the previously used phrase “has Grb-2 binding activity” is unclear because it is not clear what such an activity entails and it is unclear what “Grb-2” is. Applicants respectfully traverse this rejection. The specification discloses on page 27, lines 5-8 that “[t]he invention discloses that FRS2 binds to Grb-2.” Additionally, the specification is replete with disclosure on the interaction of FRS2 of the present invention with Grb-2. In this regard, the Examiner is directed to page 3, lines 18-24; page 10, lines 23-28; page 26, lines 9-11; page 29, line 24 to page 30, line 4; page 33, lines 5-7; and Example 1 on beginning on page 41, which discloses a publication by Lowenstein *et al.* published in 1992, (already of record as reference A19 submitted in an IDS filed on December 8, 2000 in the present application). This publication isolated a cDNA clone encoding Grb-2 and studied and characterized Grb-2. Applicants submit that the nucleic acid molecules of the present invention code for FRS2 polypeptides that bind to Grb-2. This protein, Grb-2, growth factor receptor bound protein 2, was known and characterized by persons in the art prior to the filing date of the present application. Therefore, the present claims are defined by nucleic acid molecules that encode the complete or partial sequences of

the FRS2 polypeptide of SEQ ID NO:1 and which possess the functional activity of binding to the Grb-2 protein.

Further, claims 36 and 37 are supported on page 12, lines 8-20 and original claim 4.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

II. Response to Issues Raised by Examiner in Outstanding Office Action

a. Allowed Claims

The Examiner states that claims 2, 11-13, 20, 21 and 23 are allowed, and applicants acknowledge this statement.

b. Claim Objections

The Examiner asserts that claim 27 ends with a semi-colon rather than a period. Applicants have canceled claim 27. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection.

c. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 25-29 are rejected by the Examiner under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Applicants have canceled these claims but request that this rejection not be applied to new claims 30 and 36 because applicants believe that these new claims address the Examiner's concerns regarding the claim language of these claims.

The Examiner asserts that in claim 27, the recitation "...regulates growth factor stimulation of cellular differentiation and cellular proliferation" and the recitation of "has Grb-2 binding activity" is indefinite. Applicants respectfully disagree and have provided arguments discussed above regarding the propriety of defining the encoded FRS2 polypeptides by their property of binding to Grb-2, which should overcome this rejection.

The Examiner also asserts that claims 25-29 are indefinite because the limitations of these claims, which depend on claim 11, modify the nucleic acid of claim 11 such that it no longer would be the nucleic acid of claim 11. Applicants have canceled claims 25-29 and have added new claims 30 and 36 which are independent claims, and believe that the language of these claims should obviate this rejection.

Finally, the Examiner asserts that claim 29(a) is unclear. Applicants do not agree with the Examiner but have canceled claim 29 and added new claim 30. Applicants submit that these claim features were in the application as filed and in claims 25-29 as added in a previous response, and thus do not raise new issues. Applicants believe that new claim 30 obviates this rejection.

d. Claim Rejections - 35 U.S.C. § 112, First Paragraph

i. Rejection of Claims 4-6, 22, 24 and 25-29 for Alleged Lack of Written Description

Claims 4-6, 22, 24 and 25-29 are rejected by the Examiner under 35 U.S.C. § 112, first paragraph for lack of written description. Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner asserts that Applicants have not adequately described a genus of nucleic acid probes **comprising** a nucleotide sequence that encodes a polypeptide comprising at least 10 contiguous amino acids of SEQ ID NO: 1. Applicants have amended the claims by replacing the term “comprising” with the term “consisting of”, to define that the probe is a fragment of SEQ ID NO:1 comprising at least specific numbers of amino acids. In this regard, applicants herewith provide a copy of U.S. 6,680,170, where the Examiner’s own SPE, P. Achutamurthy, approved and allowed probe claims 7-12 of U.S. 6,680,170 with similar language as in claim 36. The language defines that the probe is a nucleic acid molecule that encodes an amino acid sequence of a fragment of SEQ ID NO:1, but that the fragment can be a minimum recited length as set forth in the claims. Applicants submit that the claim language of claim 36 is adequately describes a genus of nucleic acid probes from SEQ ID NO:1. In view of the claim language and the explanation, applicants request withdrawal of this rejection to the new claims.

ii. Rejection of Claims 4-6, 22, 24 and 25-29 for Alleged Lack of Enablement

Claims 4-6, 22, 24 and 25-29 are rejected by the Examiner under 35 U.S.C. § 112, first paragraph for lack of enablement. Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner asserts that the specification, while being enabling for nucleic acid encoding a FRS2 polypeptide, does not reasonably provide enablement for any nucleic acid encoding any FRS2 polypeptide. The Examiner states that the currently claimed genus is not to those molecules that can detect nucleic acid molecules encoding a FRS2 polypeptide, but rather to any molecule which comprises a nucleotide sequence which encodes a mere contiguous amino acids of SEQ ID NO: 1. Applicants respectfully disagree, and have canceled claim 4 and replaced it with claim 36. The claimed probe in claim 36 is limited to a nucleic acid probe that encodes an amino acid sequence consisting of a fragment of SEQ ID NO:1 comprising at least 10 contiguous amino acids or a complement of such a sequence. As the specification provides SEQ ID NO:1 and a skilled person can select a nucleic acid that encodes at least 10 contiguous amino acids of SEQ ID NO:1, applicants contend that there is adequate written description of the claimed invention. The nucleic acid molecules of claim 36 and its dependent claims are probes, and therefore, in some embodiments may not be long enough to encode an FRS2 polypeptide that can be linked to a function/activity. Applicants submit that nucleic acid probes do not need to recite such function. Again, the claims of U.S. 6,680,170 do not recite such a function. Probe claims are useful to hybridize to the target sequences. In view of these explanations and language in the new claims, it is requested that this rejection be withdrawn.

CONCLUSION

The present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant(s) hereby petition(s) for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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